

Peer Review File

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Reviewer Comments

I have read the text. I can see the relevance and the effort to write a good paper. I think that the study has conceptual problems about spinal cord injury and tele-exercise. My concerns are about:

Comment 1: Page 3, Lines 68-70: The spinal cord injury presents an initial mechanical trauma but this trauma injures both nervous systems. The definition proposed by the authors is unclear the neurological injury. I suggest reading the guidelines of ASIA about spinal cord injury.

Reply 1: Thank you. In accordance with the reviewer's comment, we have consulted the ASIA guidelines for spinal cord injury and have amended the definition of SCI.

Changes in text: This section now reads: *"It is well-documented that individuals with spinal cord injury (SCI), which can be caused by damage to the structure and function of the spinal cord resulting in sensory, motor, and autonomic dysfunction below the site of injury (1), undertake lower levels of physical activity compared to the general population (2)."* (Page 6, Lines 73-78).

Comment 2: Page 3, Line 75: Most people with spinal cord injuries use a wheelchair but the author presented the examples: "walking, jogging, sprinting". I suggest including the activities in a wheelchair context, for example: push, and transfer.

Reply 2: Thank you for this feedback, we have now edited the text accordingly.

Changes in text: We have removed the examples of *"walking, jogging, sprinting"* and have included relevant examples for wheelchair users. As a result, this section now reads: *"It has been estimated that only 50% of people with SCI undertake any form of physical activity (e.g., pushing, transferring) (4), which has likely reduced further due to restrictions imposed by the COVID-19 pandemic (5)."* (Page 6, lines 81-82),

Comment 3: Page 4, Lines 108-112 and 114-117: I suggest including the "tele-exercises" and defining this concept. There is an important study with tele-exercise and spinal cord injury that can be useful: "Synchronous and asynchronous tele-exercise during the

coronavirus disease 2019 pandemic: Comparisons of implementation and training load in individuals with spinal cord injury” (open access, doi: 10.1177/1357633X20982732).

Reply 3: Thank you. We have added additional text defining tele-exercise, as well as providing appropriate examples.

Changes in text: The following section has been added and reads: *“For instance, tele-exercise, defined as interventions that offer physical training and are provided remotely, such as weightlifting and stretching (24), are deemed a promising area of technology that may encourage sustainable physical activity participation in people with SCI (25, 26) (Page 7, Lines 117-120).*

Comment 4: Page 1, Lines 17-21, Page 6, Lines 174-180: The aim of the study is not clear. And what was the hypothesis?

Reply 4: Thank you. The aim of the study has now been stated explicitly in both the Abstract and Introduction sections. Given the nature of the study, stating a hypothesis was not deemed appropriate.

Changes in text: The following sections have been added, and now read: *“This study examines the theoretical underpinning of a novel mHealth intervention that aims to improve physical activity in people with SCI, namely, the Accessercise smartphone application (or app) using the Behaviour Change Wheel.” (Page 3, Lines 28-31) and, “On this basis, the overall aim of the current study was to assess the theoretical underpinning of a novel mHealth intervention that aims to improve physical activity in people with SCI, namely, the Accessercise (<https://join.accessercise/>) smartphone fitness app. Specifically, using the BCW, we identify the “active ingredients” of the app [...].” (Page 10, Lines 176-182).*

Comment 5: Page 6 Lines 189: Is the intervention or fitness app synchronous or asynchronous? Please, include this information.

Reply 5: The fitness app is asynchronous. This has now been added to the manuscript.

Changes in text: This section now reads: *“Furthermore, Accessercise is asynchronous, allowing users to perform physical activity in numerous settings (e.g., gym, home, park) at their own pace and at a convenient time.” (Pages 10-11, Line numbers 194-196).*

Comment 6: Page 13, Lines 413-424: What is the synthesis of the results? Was the hypothesis met?

Reply 6: Thank you for highlighting this. This section has now been amended to provide a clearer synthesis of the study findings. Given the nature of the study, stating a hypothesis was not deemed appropriate.

Changes in text: This section now reads: *“The aim of the current study was to assess the behaviour change potential of a novel smartphone fitness app, Accessercise. Overall, our analysis suggests that an mHealth intervention may be a practical approach for adults with SCI, offering users the capability, opportunity, and motivation to undertake physical activity and reduce sedentary behaviours. Furthermore, Accessercise targets all functions of the COM-B model, including goal setting/action planning (capability), self-monitoring/feedback (opportunity) and reviewing goals (motivation).”* (Page 19, Lines 409-416).

Comment 7: Page 15, Line 476: The conclusion is presented as an advertisement. I suggest rewriting the conclusion with information about the aim of the study.

Reply 7: We appreciate this insight and agree with the reviewer’s comment. As a result, we have opted to amend this section so that it cannot be construed as an advertisement for the Accessercise app.

Changes in text: This section now reads: *“The current study reveals the value of using the BCW to systematically identify the potential mechanisms of action for improving physical activity levels in adults with SCI, as well as the potential of a novel smartphone fitness app, Accessercise, to change behaviour. Consequently, the effectiveness of Accessercise to facilitate the desired behaviour change should be assessed, such as via a randomised control trial. Such high-quality evidence would provide the foundation that could guide decisions concerning how to improve physical activity, as well as health more generally, in adults with SCI.”* (Pages 21-22, Lines 467-478).